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# IS THE HIGH COST OF LIVING GOING HIGHER?

BY IRVING FISHER

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## THE FORCES WHICH MAGNIFY THE SCALE OF PRICES

IN the last fifteen years prices have risen in all gold-standard countries for which we have statistics. The rise has generally averaged from thirty to fifty per cent.—so far as the very meager statistics available enable us to judge. The high cost of living, then, is one of the world riddles of to-day and will remain so until the world inquiry, provided for by the Crawford-Sulzer Bill, shall possibly lead to a solution more or less complete. Such an inquiry is sorely needed. We need to know more exactly where, when, how much, and why this rise of prices has occurred; whether, for instance, it represents a growing scarcity of food or a subtle change in its ownership, whether it is a curable or an incurable malady, and whether it has already run its course or is only in its first stages. In this article I shall consider only this last question—*viz.*, Will the trend of world prices in the future still continue upward? This is a question difficult to answer fully and with statistical precision, owing to lack of data sufficiently complete. And yet there are a thousand statistical straws in Europe and America which show clearly which way the wind is blowing.

In the September number of the *American Economic Review* I have given statistics which indicate that the high cost of living has not yet reached high-water mark and is not likely to do so for many years to come. Those who wish to examine the technical methods employed in this study, as well as the statistical material involved, are referred to the above-named article in the *American Economic Review*. In the present article I shall confine myself to a general outline of the evidence.

While making no claim to absolute certainty and fully realizing how perilous are all predictions in economics, I nevertheless believe that conclusive evidence exists that the general future course of prices will be upward, not downward.

This evidence takes account of all the chief factors which can influence the *general* price level. Predictions based on one factor only are always worthless. Thus, although gold is an important factor in the case, those predictions which are based only on forecasts of future gold production are of little value. There is some reason to believe that gold production may, in a few years, reach its maximum and then gradually decline; but it would be a great mistake to jump to the conclusion that prices must therefore fall. Such a view overlooks the many other important factors affecting the price level. Even in regard to the influence of gold itself, it overlooks the fact that it is not the annual output of gold or even the annual absorption of gold into the currencies of the world which really affects prices, but the total *stock* of gold money. The world's stock of gold money may continue to increase long after gold production has begun to fall off, just as a lake may continue to rise long after the mountain torrent which is filling it has begun to subside. The lake continues to fill up so long as the inflowing stream, subsiding though it may be, still continues to pour in faster than evaporation and other drains draw the water out. The great lake of the world's gold coin will fill up so long as the mines, even while being exhausted, nevertheless continue to pour in gold faster than the consumption and loss of gold drain it out.

Other predictions as to the course of prices ignore the gold element altogether. This is an even more serious oversight, for in gold-standard countries the gold element is present in every price. We often hear it said that the supply and demand of everything fix the price of everything and so must fix the price level. But we must not forget to include the supply and demand of gold itself in terms of which all other prices are measured. It is true, in a sense, that supply and demand fix the price of wheat in terms of gold, but supply and demand *of what?* Not simply of wheat, but also of gold! If we were to express the price of wheat in terms of tobacco, it is perfectly clear that in explaining any change in the price of wheat we should need

to study not simply the supply and demand of wheat, but also the supply and demand of tobacco. Yet I have no doubt that when, in the early history of Virginia, tobacco was the ordinary money many people forgot tobacco as an element in the price of wheat just as to-day many people forget gold as an element in the price of wheat. If the supply and demand, say, of wheat fully determine its price, why is not the price of wheat across the Mexican border in terms of Mexican dollars and cents the same as in Texas in terms of American dollars and cents? Why is it that the price of wheat in Mexican dollars is something like double the price of wheat in American dollars? Evidently the answer cannot be found in the supply and demand of *wheat*. It is not because wheat is so scarce in Mexico; it is not because there is a big demand and a little supply of wheat. It is because the Mexican dollar, being worth only half the American dollar, the whole *scale* of prices in Mexico is magnified two-fold in terms of our scale of prices.

I think it might help some people to an understanding of "the problem of the price level" if we should call it "the problem of the *scale* of prices." If the Mexicans had a dollar as heavy as ours, as have the Canadians, prices in Mexico would be on half the present Mexican scale. Some people have the naïve idea that the weight of gold in a dollar has nothing to do with its value. When, at the recent International Congress of Chambers of Commerce, I suggested a plan to virtually increase the weight of the gold dollar in order to check the rise in prices, one gentleman opposed the suggestion because he believed the weight of the gold in a dollar has nothing to do with its purchasing power. He believed that the "Government stamp" makes the dollar what it is, irrespective of its weight. This is the theory of "fiat" money, and is demonstrably false. If it were true there would not be so high a scale of prices in Mexico as compared with the United States. No one has the hardihood to deny that the great difference between the scales of prices in Mexico and the United States has some relation to the weight of gold in the dollar; yet the Mexican and American gold coins are stamped by the Government with the same name. In both countries they are "dollars" and multiples thereof.

The problem of the scale of prices is a problem of the relation between the gold unit and other things. To pre-

dict the price level we must take account of gold; we must take account of the other things priced in gold; and we must take account of all the influences which affect the relative values of gold, on the one hand, and all other things on the other hand. Let us here note that the "purchasing power of the dollar" and "the general scale of prices" are reciprocal phrases. To say that the purchasing power of the dollar is high or low is the same thing as to say that the general scale of prices is low or high, respectively. If the price scale is doubled, the purchasing power of the dollar will be halved, and *vice versa*.

Let us see, then, what is the outlook for the future as to the scale of prices and therefore as to the purchasing power of the dollar. As I have shown in my book, *The Purchasing Power of Money*, the forces which determine the purchasing power of the dollar may be grouped under two heads: first, the circulation of media of exchange (money and checks), and, second, the volume of trade or the quantities of goods bought and sold. Every increase in the use of money and checks tends to inflate prices, while every increase in the volume of trade tends to lower prices. Whether the scale of prices expands or contracts depends on which is gaining in the perpetual race between the circulation of money and checks, on the one hand, and the volume of trade on the other. In short, if facilities for payment (money and checks) outstrip the needs of business, the price level will rise; if the business to be done outstrips the money and checks to do it with, prices will fall.\* By this adjustment

\* The principles for determining the general scale of prices are sometimes imperfectly described by the phrase "the quantity theory of money," which, though usually crudely stated, contains an important truth. Owing to the perversion of this theory in the bimetallic and free-silver discussions of two decades ago, it has fallen into some disrepute, not wholly deserved. It is interesting to note that in England, where no such misuse of these fundamental principles to suit the purposes of unsound money schemes has been made, there is substantial unanimity of agreement as to the truth of the theory in the modified form employed, for instance, in *The Purchasing Power of Money*. Englishmen acquired correct ideas on this subject at the time of the famous Bullion Report on the paper money issued in the war with Napoleon. It is interesting to note that at that time the "quantity theory" happened to serve the purposes of the *Sound Money party*. In the United States, however, and (to a less extent) on the continent of Europe we still find traces of a bias or prejudice against the theory because it was believed to have served the purposes of bimetallicists and free-silverites. This bias, it is interesting

of the scale of prices the total expenditure of money and checks for goods is kept in exact equality to the value of the goods bought thereby. It is clear, of course, that there must always be this "equation of exchange" between the value of the goods bought and the value of the money and checks spent for them.

Thousands of causes can affect the general level of prices, but only as they affect the volume of business, on the one hand, or the circulation of money and checks on the other. For instance, it can be shown that a protective tariff tends to raise the general price level of the country by inflating its currency, on the one hand, and decreasing its volume of trade on the other, to say nothing of the effects on the relative prices of different commodities according as they are or are not "protected." Contrariwise, a reduction in the tariff, such as we may expect next March, will tend to restrain the upward trend of prices. So also trusts and labor unions and the concentration of population in cities, as well as various other influences, affect the volume of trade and the circulation of media of exchange.

We are not entering here on any denial of the potency of these causes. We are merely insisting that they can act only through the two channels—*volume of trade* and *circulation of money and checks*. Many who have noted the influence of some particular cause, such, for instance, as labor unions, jump to the unwarranted conclusion that the whole scale of prices must be directly affected thereby. But we cannot assume that when a particular price rises it pulls up the general level of prices with it any more than we can assume that a man who walks up-stairs pulls the earth up with him. We know that, as a matter of fact, the man who walks up-stairs is really pushing the earth down. If it were worth while we could show that in some cases (not all) a rise in a particular price tends to push down the general level of other prices. For instance, scarcity of food,

to note, appears to vary in strength in different countries in proportion to the intensity of the local political feeling engendered a decade and a half ago over these questions. It is a curious fact that such prejudices affect the judgment, usually unconsciously, even of some supposedly scientific students of the subject. But the number of such who still fanatically oppose the quantity theory of money, however qualified, is now extremely small and growing smaller.

An excellent English book on the subject by Sir David Barbour, entitled *The Standard of Value*, has just been issued.

while it tends to raise food prices, tends to lower the prices of clothing and other things. For the more income is spent on food the less income is there left for other things, and therefore the less effective demand for these other things.

The only true way of treating the general level of prices, then, is through the "equation of exchange." The factor which we have called the "circulation of money and checks" may obviously be resolved into two factors, although closely related to each other—namely, the "circulation of money" and the "circulation of checks," and each of these two factors may, in turn, be resolved into two others. The circulation of money resolves itself into the "volume of money" in circulation multiplied by the "velocity of circulation" of that money—that is, the number of times the money of the country is *turned over* in the course of a year. In the same way the "circulation of checks" resolves itself into the "volume of deposits subject to check" (the total of what people very improperly call the money they have "in the bank" to pay bills with) multiplied by the velocity of circulation of these deposits; in other words, the number of times they are turned over in the course of a year, or, in business terms, the "activity" of bank accounts.

#### RECENT STATISTICS

The meaning of these factors can best be seen by a glance at the actual statistics. I have calculated that the total annual circulation of media of exchange in the United States (1911) is approximately \$422,000,000,000, of which about \$34,000,000,000 consisted of *money* payments and the remainder, \$388,000,000,000, of *check* payments. These figures show that the money expenditures in the United States constituted only eight per cent. of the total national expenditures, the other ninety-two per cent. being the expenditures by check.\* The \$34,000,000,000 of money expenditure was accomplished by a volume of only \$1,640,000,000 of actual money in circulation (*i. e.*, outside the United States Treasury and the banks). This shows that on the average each dollar of money in the pockets and tills of the people must

\* I may add in passing that these calculations are, so far as I know, the first to show, with any approach to accuracy, the relative importance of cash and credit—*i. e.*, of money and check expenditures—and agree well with the general impression which business men have always had.

have changed hands about twenty-one times in the year—*i. e.*,  $\$34,000,000,000 = 21 \times \$1,640,000,000$ . In the same way the  $\$388,000,000,000$  expenditure by check was accomplished by means of a volume of  $\$7,770,000,000$  of bank deposits subject to check, turned over about fifty times in the year—*i. e.*,  $\$388,000,000,000 = 50 \times \$7,770,000,000$ .

For convenience we may take the year 1909 as a base for comparison both for prices and for the volume of trade. The scale of prices in 1911 was  $2\frac{1}{5}$  per cent. higher than that for 1909, and the volume of trade in 1911 *reckoned at the prices of 1909* was  $\$413,000,000,000$ , so that the actual value of this trade (in the prices of 1911) was  $2\frac{1}{5}$  per cent. more than this, or  $\$422,000,000,000$ , which, of course, is the same as the total expenditure already given—that is,  $\$422,000,000,000 = \$413,000,000,000 \times 102\frac{1}{5}$  per cent.

We can now express in figures the equation of exchange for 1911 (using 1909 as the base of reference for the price level and the volume of trade). To save writing too many ciphers the following statement is made in *billions* of dollars:

Circ. of money (34) + Circ. of checks (388) = Value of goods bought (422).

$$\overbrace{\text{Money} \times \text{its velocity}}^{1.64 \times 21} + \overbrace{\text{Deposits} \times \text{their vel'y}}^{7.77 \times 50} = \overbrace{\text{Trade} \times \text{scale of prices.}}^{413 \times 102\frac{1}{5} \text{ per cent.}}$$

These six factors act and react on one another, but in a general way it is true that the scale of prices is the effect of the other five causes and not an independent cause itself affecting these other factors.

In a general way also any increase in money will carry with it a corresponding increase in deposits, because, in a general way, the public arranges its cash and its check expenditures in fairly definite proportions. (Bank reserves also tend to keep proportional to deposits.) So an inflation of money in circulation tends to raise prices not only by increasing the circulation of money itself, but also by increasing deposits and their circulation. But there is usually also a tendency of deposits to grow on their own account. The extension of banking brings with it a rapid growth of deposits not only absolutely, but relatively to money.

In the last fifteen years money in circulation in the United States has grown at the rate of 4.2 per cent. per annum, which is a very rapid rate. But deposits have grown at the still more rapid rate of 7.3 per cent. per annum. The



rate of turnover of money has grown less than 1 per cent. per annum and the rate of turnover of deposits 2 per cent. per annum. These rates of increase of the four factors on the left side of the equation of exchange have caused the total of that side—*i. e.*, the total expenditures—to increase at the rate of 9.1 per cent. per annum. Consequently the right side of the equation had to increase at this same rate, and as the volume of trade increased only 5.3 per cent. per annum the result was that, to make things even, the price level had to rise at the rate of 3.5 per cent. per annum. We may say, then, in a general way that in the United States prices have been rising over 3 per cent. per annum *in spite of* a great expansion of trade and *because of* a still greater expansion of facilities for payment. The following figures show the present average annual rates of increase in the United States of the six factors in the equation of exchange:

Money in circulation, 4.2 per cent. per annum.

Its velocity of circulation, 0.7 per cent. per annum.

Deposits subject to check, 7.3 per cent. per annum.

Their velocity of circulation, 2.0 per cent. per annum.

Volume of trade, 5.3 per cent. per annum.

Scale of prices, 3.5 per cent. per annum.

Unfortunately, we have no equally good statistics for other countries. Yet we can calculate approximately the growth of money and deposits in various countries from official statistics, and the growth of trade from statistics of tons of freight carried by the railways, letters carried by the Post Office, shipping, tonnage, etc. The growth of the velocity of circulation of deposits can be calculated from the rate at which the growth of bank clearings outstrips the growth of deposits. This leaves only the velocity of circulation of money of which we know little, but which I assume to be growing at the rate of one-half per cent. per annum—that is, approximately as fast as in the United States. The estimates of the growth of the various factors mutually check one another by fulfilling very closely the obvious requirement that the two sides of the equation of exchange must grow equally fast. This requirement is exactly fulfilled for England and also for English-speaking countries as a group (United States, Great Britain, Canada, Australia), and within one-half of one per cent. for all gold-standard countries (including Continental Europe, Japan, India, etc.).

For the gold-standard world as a whole (comprising now all the important commercial nations except China) the estimates, as finally adjusted, indicate that the quantity of money in circulation is increasing at the rate of  $2\frac{1}{2}$  per cent. annually; its velocity of circulation,  $\frac{1}{2}$  per cent.; deposits,  $6\frac{1}{2}$  per cent.; their velocity,  $1\frac{1}{2}$  per cent.; and the total circulation of media of exchange 7 per cent. This is outstripping trade, which is growing only  $4\frac{1}{2}$  per cent. per annum. Hence the scale of prices has to expand at the rate of  $2\frac{1}{2}$  per cent. per annum. In short, then, world prices have been going up  $2\frac{1}{2}$  per cent. a year because facilities for payment are outstripping the growth of trade by that amount.

#### FORECAST

But these calculations all relate to the past. The question now arises, Can we, on this basis, forecast the future? To answer this question we need to consider (1) the outlook as to inflation of the circulation of money and checks and (2) the outlook as to volume of trade. We shall find that monetary inflation promises to continue at nearly the present rate, check inflation at more than the present rate, and the growth of trade at no more than the present rate.

To be specific, there is strong reason to believe that for many years to come the world's money in circulation will continue to expand at *not less* than 2 per cent. per annum (which is  $\frac{1}{2}$  per cent. less than at present); its velocity at *not less* than  $\frac{1}{2}$  per cent. per annum; deposits at *not less* than 6 per cent. ( $\frac{1}{2}$  per cent. less than at present); and their velocity of circulation at *not less* than  $1\frac{1}{2}$  per cent. (the present rate); while the volume of trade promises to increase at *not more* than  $4\frac{1}{2}$  per cent. per annum (its present rate). On the basis of these estimates we conclude that the total facilities for purchasing goods will probably increase *at least* at the rate of  $6\frac{1}{2}$  per cent. per annum, while the volume of trade will increase *at most* at the rate of  $4\frac{1}{2}$  per cent., making necessary a probable average annual increase in prices of *at least* 2 per cent. per annum.

It is interesting to note that since this estimate was made prices in United States and England have already advanced, as compared with a year ago, an average of about 5 per cent. Of course the future will see some downs as well as ups in the course of prices; in fact, there is reason to expect the present upward rush to culminate in a crisis\* in a few years

followed by a temporary depression. But the general trend will, I believe, be upward for many years to come.

Doubtless the reader desires to know why the above figures have been assigned as safe estimates for the future. The reasons are, in brief, as follows:

First we have to consider the outlook as to the world's stock of money. The principal cause in recent years for the increase of money in circulation has been the great output of gold. This output has been a remarkably steady percentage (four and one-half) of the world's stock of gold. Some gold-mining experts, like De Launay and John Hays Hammond, believe it will continue. Others, like George E. Roberts, Director of the United States Mint, think the chances are that the maximum will be reached in a few years. At any rate, and even leaving out of account the chance of great discoveries which always exists, the output is fairly sure to remain excessive for many years even if it ceases to increase or to increase at the present rate.

Director Roberts, who is one of the best-informed men in the world on this subject, and who, as stated, takes a conservative view, states in his 1911 report:

"It has been a theory of writers on the subject that the rise of commodities and wages would automatically check the production of gold, thus providing its own corrective; but the gold-mining industry furnishes an illustration of how invention, organization, and the use of capital are able to accomplish a reduction in costs when every factor in the calculation shows an advancing tendency. The cost of handling ore and extracting gold in the Transvaal mines per ton of ore treated has steadily declined and made a new low record in 1910. . . . While it is not likely that the Rand will show an appreciable decrease for a good many years to come, it is probably not far from the maximum output. There has been no gain in the world's production for some years except that made by the Rand."

\* There is not space here to discuss fully this important possibility in the future course of prices. Both economic principles and statistical records indicate that any prolonged rise of general prices is likely to culminate in a crisis. The more rapid the rise the more quickly the crisis is likely to happen. The tendency is connected with over-investment in speculative enterprises. It is a curious and interesting fact that such over-investment seems to have been curbed in the United States by the recent "anti-trust" policy, and the rise of prices may be further curbed in the United States by a reduction in the tariff next spring. These checks may have the useful result of postponing the next crisis for this country. In some other countries there seems to have been developed a more dangerous over-expansion than in the United States.

We conclude, then, that so far as the future production of gold is concerned it is not safe to predict any great increase, although it would be still less safe to predict a decrease. It seems safe only to say that the production of gold will not decrease fast nor suddenly and that whether or not its production decreases at all gold will for many years still be produced in sufficient quantities to create a net addition to the world's money and bank reserves nearly, if not quite, equal to the record of recent years—that is, let us say, at least two per cent. per annum, which is only four-fifths of the present rate. It seems unlikely that the rate of increase of money stock will fall much below this.

Nor is gold the only source of addition to monetary stock. If the plan of the National Monetary Commission should be adopted, or, for that matter, any other plan likely to be considered for improving our currency, the result must inevitably be to inflate the currency, for it would put a stop to our present uneconomical use of bank reserves and release reserves now locked up. The tendency of all these changes (however desirable on other grounds) would be to inflate the currency still further and to raise prices. When, therefore, we consider all the possibilities before us—the chances of new discoveries of gold or of further economies in gold-mining, the certainty of a continuance of an enormous annual extraction of ore actually “in sight,” the chances of increases in paper money and subsidiary coins—we may feel confident that gold production will not slacken enough to bring the upward movement of prices to a standstill. In order to arrest this upward movement of prices, the gold production would (other things being equal) practically need to cease altogether so as to make the money in circulation remain stationary, for the figures given show that money is now increasing at the rate of  $2\frac{1}{2}$  per cent., which is the same rate as prices are increasing.

Next let us consider the prospects for the velocity of circulation of money. We have assumed that the velocity of circulation of money in the world will only feebly increase, this assumption being based on the calculation made above for the United States. It is safe to say that the rate of increase could not be much lower than that assigned and it may be somewhat higher. In fact, there is much to be said in favor of the latter view. The extension of rapid transportation will tend powerfully in this direction, espe-

cially in slow and backward countries like India. Again, the extension of banking tends in the same direction. Where banking does not exist, money is hoarded—*i. e.*, circulates slowly. No one will, I think, deny that for many reasons hoarding is constantly on the decrease, and a decrease in hoarding means an increase in velocity of circulation. It was not long ago when French people stowed away large sums of money in stockings and other domestic receptacles. These were their chief savings-banks and savings meant hoards. But to-day such money as is not needed for immediate use is generally deposited in some sort of bank, whether a savings-bank or an ordinary bank of deposit, and is thence returned by that bank into circulation or used as a reserve for several times its value in deposits subject to check. In either case the effect is virtually to inflate the currency.

We may, I believe, expect such a release of Oriental hoards in the future. The astonishing lengths to which hoarding is now carried in Egypt and India are emphasized by Director Roberts. He says:

“The Egyptian situation is somewhat like that of India, . . . but there is some mystery about the way the gold disappears from view. It does not enter into bank stocks, and it is difficult to understand how a country of its size and population and in which the masses of the people are so poor can absorb so much gold coin. Some light is shed upon the situation by the following statement in an address by Lord Cromer, made in London in 1907:

“‘A little while ago I heard of an Egyptian gentleman who died, leaving a fortune of £80,000, the whole of which was in gold coin in his cellars. Then, again, I heard of a substantial yeoman who bought a property for £25,000. Half an hour after the contract was signed he appeared with a train of donkeys bearing on their backs the money, which had been buried in his garden. I hear that on the occasion of a fire in a provincial town no less than £5,000 was found hidden in earthen pots. I could multiply instances of this sort. There can be no doubt that the practice of hoarding is carried on to an excessive degree.’”—*The Statist*, November 2d.

The amount of such hoards has been emphasized by Director Roberts as evidence that they provide a future sink for gold and thus tend to absorb gold and perhaps arrest the rise of prices. There can be no doubt that Oriental hoarding will continue for years to afford an outlet for redundant gold and so tend to mitigate the resultant rise of prices. But there is no reason to think that such a cause can stop the rise of prices. The weakness of such

an argument lies in the tacit assumption that the influence of hoarding will be more powerful in the future than in the past, whereas the opposite is more likely to be the case; and even in the past it has not been sufficient to prevent a rapid rise of prices. In the future we must reckon with a lessening tendency to hoard and an increasing tendency to gradually *unload* ancient hoards. Just as, with the introduction of banking, hoarding long ago went out of vogue in England, and more recently in France, so it must surely, if slowly, go out of vogue in India and Egypt. The transformation will take place as these countries gradually introduce Occidental banking. Already there is a rapid growth of banking in these countries.

The same principle applies to Oriental hoards in the form of ornaments. Centuries ago Englishmen used to put part of their hoards into "plate" which could be reconverted into coin if emergency required. With the advent of banking devices such a custom has long since disappeared. It is to be expected that little by little the same process will turn part of the Oriental hoards of ornaments into monetary use. Thus, as a consequence of the introduction of Western civilization into the Orient, we have the prospect of further additions to the effective use of the world's gold, a further virtual inflation of the currency. Director Roberts says:

"There is an undoubted tendency in all countries to use banks more than formerly, and it is probable that the stock of gold in banks has been recruited not only from new production, but to some extent from gold heretofore held in private hoards and out of use. In every country the younger generation to whom these hoards descend is likely to put them to some use."

Similar Government hoards and even bank hoards seem likely in the future to decline or, at any rate, to cease being accumulated. A decade and more ago gold was so scarce, as compared with the demands made upon it, that a large part of the early additions to the world's stock was absorbed to strengthen weak reserves and Government hoards and to replace silver and paper. About a billion of gold has been accumulated by the United States in the last ten years, and about half a billion by Russia and France. Moreover, Japan, Argentina, Brazil, and Mexico have absorbed much gold. India, Mexico, the Philippines, Panama, and

the Straits Settlements have made demands on gold to sustain their "gold exchange standard." An economist of note writes:

"The effect of raising prices, I think, however, would have been vastly greater than it has been had not the United States, Russia, and Egypt been hoarding gold and thus employing it uneconomically."

These demands on gold have now been so far satisfied that in the future any addition to the world's stock will be freer to enter actual circulation and so to act on prices. The diminution of hoarding, therefore, will in various ways tend to raise prices. To be conservative, I have assumed that the effect on the velocity of circulation of money will not be sufficient to raise it above one-half per cent. per annum. It would not be surprising, however, if the truth should be several times this figure.

We come next to the volume of deposits subject to check. When once it is recognized that deposits subject to check are a form of currency similar in function to bank-notes—in fact, are to-day the *chief* form—the discussion of the price level will assume a new phase.

In the United States the volume of check transactions forms 92 per cent. of all transactions. Probably something like this ratio obtains in Canada and England. Outside of English-speaking lands, however, the ratio is undoubtedly much less. If we could assume that the volume of check transactions maintains a constant ratio to that of money transactions the circulation of checks would not have to be reckoned with as an independent factor. Some day in the future, when the use of checks has grown up to its full capacity, it would not be strange if the ratio of checks to money should thereafter remain fairly constant. At present, however, the use of checks in place of money is being extended with prodigious rapidity. *This is the dominant feature of the present situation and forms the chief basis of the forecast here attempted.* All nations—even those which have used checks for generations—are making a continually larger use of checks relatively to money. The figures show that everywhere the use of banking devices is increasing much more rapidly than the volume of money. Even in England, where checks have been used for so long a time, the volume of deposits is still increasing at the rate of 3½ per cent. per annum; in the United States at 7.3 per cent.;

in Canada at 12 per cent.; and in Australia at  $3\frac{1}{2}$  per cent. These are English-speaking lands in which, if anywhere, the use of checks might be expected to have approached its limit. No such approach is observable in the United States or Canada, and the data for Australia are too meager to be considered representative.

In Continental Europe and Japan there is certainly no tendency to decrease. Here in the next few decades is a vast region for the extension of deposit banking. It would not be surprising if in Germany and other Continental countries the use of checks should soon reach the stage when every business man would begin to realize that he must employ them. When this feeling appears the use of checks will increase at an even more rapid rate than at present. At present the rate of increase in France is 7 per cent.; in Germany, 13 per cent.; Holland, 9 per cent.; Denmark, 10 per cent.; Norway, 8 per cent.; Sweden,  $5\frac{1}{2}$  per cent.; Switzerland, 5 per cent.; Russia,  $2\frac{1}{2}$  per cent.; Japan, 10 per cent.; the Austro-Hungarian Bank, 17 per cent. In backward India, where deposit banking has only just begun, the rate of increase is 9 per cent.; in Mexico, 11 per cent. At present the bank deposits of the United States exceed those of all other countries combined; but the deposits of Continental Europe and Japan will, in the future, cut more and more of a figure, and by the time—perhaps a generation hence—when their rate of increase begins to slacken, India and others of the (now) backward countries will need to be reckoned with.

We come next to the velocity or “activity” of deposits subject to check. In the United States this has shown a progressive tendency to increase. As those conditions—concentration of population in cities, rapid transportation, etc.—which tend to increase this velocity are constantly growing more pronounced throughout the world, we may expect it to increase for other countries also. The activity of deposits in cities varies almost exactly with the size of the cities, and the range of variation is surprisingly great. This exceeds one hundred times a year in Paris, Berlin, and Brussels, but is only sixteen times a year in New Haven, four times a year in Athens, Greece, and only once a year in Santa Barbara, California.

These results accord with the fact that the velocity of circulation of deposits in the United States has increased



very substantially, while the concentration of population has been going on. During the last fifteen years it has risen from thirty-seven times a year to fifty times a year.

We have corroborative testimony in the statistics of clearing-houses. The rate at which these increase is a rough indication of the rate at which the use of checks increases. Clearings usually show a more rapid rate of increase than deposits. This indicates that the use of checks is increasing faster than the deposits against which they are drawn, which means that the activity of these deposits is increasing.

Finally we come to the volume of trade. This is the one factor which acts to restrain the rise of prices. The volume of trade will continue rapidly in the future as in the past, but so far as I know there is no evidence that it will expand any faster in the future than it has in the years which have just passed by; and no evidence that it will, as long as the present development of banking continues, outstrip the expansion of media of exchange. On the contrary, there is some reason to believe that trade, while it will continue to expand, will expand more slowly. The fuller occupation of our lands and the decrease in the rate of growth of our population, which is partly a consequence of this occupation and partly a consequence of the voluntary decrease in the birth-rate, will naturally tend to curb the rate of increase.

After a careful weighing of all the evidence available, I think it not improbable that money, its velocity, deposits, and their velocity will increase in the future as fast as or faster than in the past, but to be conservative I have reduced by one-half per cent. the estimates for the growth of money and deposits. On the other hand, the volume of trade does not seem likely to increase faster in the future than in the past.

The following estimates for the future rates of increase of the primary world factors in the problem seem, therefore, conservative:

Money, not less than 2 per cent. per annum.

Its velocity, not less than  $\frac{1}{2}$  per cent. per annum.

Deposits, not less than 6 per cent. per annum.

Their velocity, not less than  $1\frac{1}{2}$  per cent. per annum.

Trade, not more than  $4\frac{1}{2}$  per cent. per annum.

The further calculation results that the total use of money will grow at least as fast as  $2\frac{1}{2}$  per cent. per annum, and

of checks  $7\frac{1}{2}$  per cent. Checks being much more important than money, it can be shown that the average growth of the combined facilities for buying goods (by both money and checks) will probably be *at least*  $6\frac{1}{2}$  per cent. per annum. As trade promises to grow *at most* only  $4\frac{1}{2}$  per cent. per annum I regard the difference  $6\frac{1}{2}-4\frac{1}{2}$ , or 2 per cent., as a fairly safe minimum estimate for the future average annual expansion of the scale of prices, while, humanly speaking, I feel perfectly safe in predicting that the trend of prices for many years to come *will not be downward*. As already stated, this conclusion does not preclude, of course, the possibility or even probability of temporary recessions of prices like that following the crisis of 1907.

#### DISCUSSION

It has already been pointed out that the causes ordinarily supposed (with more or less truth) to be most responsible for the present high cost of living, such as the tariff, the trusts, the labor unions, the middleman's profits, advertising, wars, armaments, wastes in industries, etc., etc., can work out their effects on the *general* level of prices only through changes in the general factors which we have studied. But some of these causes, besides having these indirect influences on the *general* level or scale of prices, also directly affect *individual prices or groups of prices*. Thus the pressure of population on land has tended to make cattle-raising more difficult and so directly to increase the price of meat. Similar causes may tend to raise the prices of food products as a group. The prices of foods constitute, of course, a very important part of the cost of living. Yet a study of the actual statistics reveals the surprising fact that the general average rise in the price of food has little more than kept pace with the general average level of all prices. This fact and others make it clear that, in the main, the rise in "the cost of living" is not a rise peculiar to foods or other special items of domestic expenditure, but is merely a part of the general expansion which has been going on and is still to go on, due *primarily*, as has been explained, to gold inflation and the extension of banking.

I realize perfectly that this is a difficult conclusion for many people to accept; it is difficult to see the woods for the trees. Yet most of the common explanations of the rise of prices are so shallow that they merely need to be stated

to be refuted. No explanation is sufficient which merely explains one price in terms of another price. For instance, to say that "prices" have gone up because "wages" have gone up is merely to say that the prices of *commodities* have risen because the price of *labor* has risen. It is no more satisfactory to turn it about and say that the price of *labor* has risen because of the higher prices of *food* which have driven workmen to strike for higher wages; or that the cost of finished products has risen because the cost of raw material has risen, or *vice versa*. These are examples of circular explanations well cartooned by the picture of a number of people standing in a circle and each accusing his neighbor; the consumer blaming the retailer, the retailer the middleman, the middleman the manufacturer, the manufacturer the producer, the producer the workman, the workman the trust, the trust the extravagant consumer, etc. Of course individual prices act and react on one another in thousands of ways. But these pushes and pulls between different commodities do not raise them all any more than pulling on our boot-straps will raise us from the ground. The causes which raise the general level of prices are as distinct from those which change individual prices as are the causes affecting the tides distinct from those affecting individual waves. The ground-swell or ocean tides of prices are primarily the result of inflation of some kind.

Every time that inflation of any kind has visited a country the public has to be educated as to how inflation works. Only recently has South America been going through the experiences of paper-money inflation such as are still fresh in the memory of those who lived through the Civil War. Fortunately for our present purpose, most Americans are at least aware of the fact that paper-money inflation actually raises prices. From paper-money inflation to gold inflation and from gold inflation to credit or check inflation are easy steps.

But what, it may be asked, is, after all, the harm in rising prices? Is not one price level as good as another? Undoubtedly one price level is as good as another, but in changing from one price level to another all contracts are interfered with as well as all other business arrangements expressed in money and prevented by law or custom from easy adjustment in the interim. A working-man who put one hundred dollars in the savings-bank fifteen years ago

now finds that he has "accumulated" one hundred and fifty dollars, the fifty dollars being interest accrued. But this one hundred and fifty dollars, instead of being a *real* increase of fifty per cent.—as he has every right to expect and as would have been the case had his dollar remained constant in purchasing power—will now buy no more than the original hundred dollars. In other words, the fall in the purchasing power of money has in recent years subtly robbed all the savings-bank depositors of practically all their interest. Similarly, salaried men and wage-earners have been heavy losers. Losses of an opposite kind are experienced during a period of falling prices. Worst of all, great and general price changes cause uncertainty. Business is always injured by uncertainty, and uncertainty in the purchasing power of the dollar is the worst of all business uncertainties, though this is seldom appreciated. The fact that most people fondly believe that a "dollar is a dollar" merely shows that a dollar ought to be always the same. The dollar ought to be standardized just as the yard-stick has been standardized or any other unit or measure or weight employed in commerce.

As soon as the imperative need of standardizing the dollar as a protection to business is fully realized, there will doubtless be many other suggestions for coping with the problem of gold and credit inflation. This is one of a number of great problems which, it is hoped, may be considered by the much-needed International Conference on the High Cost of Living.

IRVING FISHER.